ABSTRACT OF THE DISCLOSURE

The present invention provides and improved process for the production of graft copolymers. The present invention provides a polymerization process for the preparation of graft (co)polymers by the grafting through polymerization process. An embodiment of the polymerization process of the present invention comprises copolymerizing macromonomers with (co)monomers utilizing a macroinitiator to form a graft (co)polymer. Another embodiment of a polymerization process of the present invention comprises (co)polymerizing macromonomers and monomers with a graft copolymer macroinitiator to form a block-graft (co)polymer. The polymerization process may comprise an polymerizing macromonomers and monomers with a compatible macroinitiator. The compatible macroinitiator allows for a homogeneous polymerization medium by reducing phase separation as the polymerization process progresses. Improved reactivity for the macromonomer can be expected because the growing copolymer chain is a block copolymer comprising the (co)polymerization components and the first formed copolymer acts as a surfactant and retains compatibility with the macromonomer. Embodiments of the process of the present invention may be use to prepare more uniform graft copolymers with lower molecular weight distributions in both the backbone and the grafts.